

METHODS AND APPARATUS FOR CURRENT CONTROL OF A
THREE-PHASE VOLTAGE SOURCE INVERTER IN THE
OVERMODULATION REGION

ABSTRACT OF THE DISCLOSURE

A drive system that is suitable for high bandwidth current control of a three-phase voltage source inverter in the overmodulation region includes a feedback path that has a harmonic decoupling block 5 that subtracts selected harmonic components from signals representative of a corresponding motor phase current signal. The harmonic decoupling block thereby generates corrected feedback signals. The drive system also includes subtractor blocks that subtract the corrected feedback signals from signals representative of open-10 loop magnetizing reference currents to generate difference signals. Also included is a modulation block that utilizes the difference signals to produce signals to drive a three-phase voltage source inverter in an overmodulated six-step mode.